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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/527,350

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Monika Jobmann

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EXAMINER

HAIDER, SAIRA BANO

ART UNIT

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1796

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/527,350	Applicant(s) JOBMANN ET AL.	
	Examiner SAIRA HAIDER	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>01/19/09, 06/13/05, 03/10/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 12-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Regarding claims 12-21, the phrase "e.g." renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-5, 8, 11 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Menting (US 2003/0165682).

6. Menting discloses microcapsules comprising a core of a rubber additive material encased by a casing (referred to by Menting as the coating) and further encased by a waxy-material (abstract; example 6) for use in rubber vulcanization.

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7. The wax-material creates a free-flowing composition and thus is considered to reduce the static friction as claimed ([0060]). The casing material is stable up to 130°C (0031]). The coating of Menting melts in the temperature ranges of rubber vulcanization ([0029]), thus the core is released in a controlled manner. A suitable rubber additive material is crystalline or amorphous sulphur ([0025]).

8. In reference to claim 11, Menting notes that the final particle size is as low as 100 microns, wherein the starting size of the sulphur was 5 microns (examples 1 and 6). Accordingly, the shell and the waxy-coating have a thickness of 95 microns.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 7, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menting (US 2003/0165682).

11. In reference to claim 7, Menting applies as discussed above, but fails to disclose the compounds claimed as the second polymer material. However Menting notes that polyacrylates are suitable as the claimed first polymer ([0028]). Accordingly, it would have been obvious to form a second coating with a polyacrylate in order to further delay and control the release of the core material via a second different coating that controls the release rate differently than the first coating. Wherein Menting recognizes that polyacrylates are suitable as coating materials since they melt in the vulcanization temperature.

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12. In reference to claim 9, Menting discloses that the microcapsule with the dual-shell layers is about 100 microns (0.1mm) (example 6). However, the starting particle size for these microcapsules was 5 microns (examples 1-5). Wherein Menting discloses that a suitable particle starting size can be as low as 1 micron ([0034]). Accordingly, the final particle size would also be decreased. It would have been obvious to one of ordinary skill in the art at the time of the invention to control the size of the final microcapsule by both adjusting the size of the initial starting particle.

13. Additionally, the size of the particle is recognized as a result-effective variable because changing it will clearly affect the type of product obtained. Wherein a decrease in the diameter of the particle will result in a greater number of possible particles by weight included in the final composition, further, a greater number of particles provide a greater distribution and thus improved vulcanization in the rubber. Thus it would have been obvious to one of ordinary skill in the art to utilize a microcapsule having the claimed diameters so as to produce the desired end results. See MPEP § 2144.05 (B). Case law holds that “discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art.” See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

14. In reference to claim 10, Menting discloses that after the first shell the particle size goes from 5 microns to roughly 5 microns (example 1). Therefore it does not appear that the coating is of a significant thickness. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to increase the thickness of the first shell in order to decrease the release time of the core material.

15. Additionally, the thickness of the first shell is recognized as a result-effective variable because changing it will clearly affect the type of product obtained. Wherein an increase in the thickness of the first shell will result in an increase in the release time of the core material and this

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allow the final composition to be subjected to a higher processing temperature prior to vulcanization. Thus it would have been obvious to one of ordinary skill in the art to utilize a microcapsule having the claimed first shell thickness so as to produce the desired end results.

16. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Menting (US 2003/0165682) in view of Johnson (US 2,623,079).

17. In reference to claim 7, Menting applies as discussed above, but fails to disclose the compounds claimed as the first polymer material. Thus attention is directed towards the Johnson reference which discloses the encapsulation of sulphur particles using melamine formaldehyde resins (col. 1, lines 1-6; col. 3, lines 64-69). Johnson notes that melamine formaldehyde resins are suitable as the coating material because it is one in which the sulphur is not soluble, it is substantially insoluble in the compounded rubber, it retains protective sealing during milling, is not extensively softened by contact with the rubber compound, is inert at the milling temperatures, and is stable at a temperature of about 140°C (col. 3, lines 37-69). Accordingly, in view of the above mentioned benefits of melamine formaldehyde it would have been obvious to one skilled in the art to utilize melamine formaldehyde as a suitable coating material in the first shell layer of the microcapsule taught by Menting.

18. Claims 12-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menting (US 2003/0165682) in view of Johnson (US 2,623,079), in further view of Okada et al. (US 4,670,344).

19. Menting and Johnson apply as discussed above, but fail to disclose the claimed prepolymeric solution and curing process for the melamine formaldehyde first shell polymer, as per claim 12 and the dependent claims thereof. Thus attention is directed towards the Okada reference which

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discloses a melamine formaldehyde polymeric shell of a microcapsule formed by dispersing the liquid core material within the prepolymer solution (abstract, col. 2, line 60 to col. 3, line 3), and chemically curing the microcapsule via an acid catalyst (col. 4, lines 63-65) or heat (Example 1). The final microcapsules are filtered and dried (Example 1(d)). Menting recognizes that a variety of suitable methods can be used to prepare the microcapsules ([0042]). Wherein the Okada reference represents an alternate method of forming the favorable melamine formaldehyde first shell when the core material is a liquid. Okada notes that the disclosed method allows for control of the ratio of formaldehyde to melamine in order to form a shell which is homogenous and excellent in mechanical strength, impermeability and solvent resistance. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the method of Okada to encapsulated sulphur in a melamine formaldehyde first shell as taught by the combination of Menting and Johnson. Wherein utilization of a recognized method is within the skill of one in the art and the method of Okada proves controls in the ratio of the shell materials to improve properties.

20. In reference to part (c) of claim 12, it is noted that the above rejection only alters the process of formation of the first shell, thus the second shell would be formed via the process of Menting. The second polymer (also reads on the sliding or wearing layer) is deposited via fluidized bed reactor, a type of spray drying, as disclosed by Menting (example 6). In reference to claim 20 which requires granulation, it is noted that the deposition of the second layer is done in a fluidized bed reactor, thus the particles having the first shell are bound to hit the walls of the reactor due to the pressure and will have a smaller size (i.e. become granulated). Further, Menting notes that after the second layer is applied, the microcapsule decreases in size due to the contact with the rubber mixture and thus can be considered granulated ([0061]).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to SAIRA HAIDER whose telephone number is (571)272-3553. The examiner can normally be reached on Monday-Friday from 10am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James J. Seidleck/
Supervisory Patent Examiner, Art Unit 1796

Saira Haider
Examiner
Art Unit 1796